

Remarks/Arguments:

In response to the non-final Office Action, the applicants provide the following remarks and arguments in support of their pending claims. By way of background and confirmation, claims 1 through 15 are pending in this application. Independent claims 1 and 6 have been substantively amended to address the patents cited and issues raised in the Office Action. Dependent claims 3 through 5, and 7 through 15 have similarly been amended to be consistent with the amendments made to claims 1 and 6.

The Office Action rejected claims 1 through 5 under 35 U.S.C. § 103(a) as being rendered obvious and being unpatentable in view of U.S. Patent No. 6,285,858 (“Yoshida”) and further in view of U.S. Patent Application No. US 2002/0128769 (“Der Ghazarian et al.”). The Office Action further rejected claims 6, 7, and 10 through 15 under 35 U.S.C. § 102(e) as being anticipated by Yoshida.

Finally, the Office Action rejected claim 8 under 35 U.S.C. § 103(a) as being rendered obvious and being unpatentable in view of Yoshida and U.S. Patent No. 3,962,142 (“Freeman et al.”), and rejected claim 9 under 35 U.S.C. § 103(a) as being rendered obvious and being unpatentable in view of Yoshida and U.S. Patent No. 5,460,649 (“Strassman”).

Applicants respectfully contend that, as amended and clarified, Yoshida does not anticipate or render obvious the pending claims alone or in combination with any of the other cited references.

A. Claim 1 and Claim 6 Each Recite Patentable Subject Matter

As amended and presented, claim 1 specifically recites:

1. A radio communications system comprising:
 - (a) a wireless intrinsic pavement transmitter and antenna material for conducting radio frequency signals;

(b) a first transmitter/receiver, at a first point along the intrinsic pavement transmitter and antenna material, and in communication with an end-user; and

(c) a second transmitter/receiver, at a second point along the intrinsic pavement transmitter and antenna material, and in communication with an end-user; wherein the intrinsic pavement transmitter and antenna material conducts radio frequency signals between the first and second transmitter/receiver entirely within the pavement transmitter and antenna material, and further wherein the only conductive coupling between the first transmitter/receiver and the second transmitter/receiver is the intrinsic pavement transmitter and antenna material. (Emphasis added).

Similarly, independent claim 6, as amended and presented, provides:

6. A wireless intrinsic pavement transmitter and antenna material, comprising a roadway, including:

(a) a suitable wearing course material; and

(b) an effective amount of radio frequency conductive material, sufficient to conduct radio frequency signals, between at least two locations within the pavement, such that the radio frequency signals are conducted entirely within the pavement transmitter and antenna material, and wherein the only conductive coupling between the at least two locations within the pavement is the intrinsic pavement transmitter and antenna material. (Emphasis added).

As explicitly provided within these two independent claims, the present invention discloses a *wireless* intrinsic pavement radio frequency (“RF”) transmitter and antenna *material*, and a radio communications system using an intrinsic pavement transmitter and antenna *material* such that the RF signals are conducted entirely within the pavement transmitter and antenna *material*, or as previously described, are conducted entirely through the conductive paving materials. There are no wire or other conductive materials coupling the first and second transmitter/receiver. By design, the roadway paving material *is the conductor and transmitter of the radio frequency signals* between the first transmitter/receiver and the second transmitter/receiver. The previous amendment, now further

clarified provides that the claims are explicitly limited such that there are no other conductive couplings between the transmitter/receivers other than the intrinsic pavement material.

As previously noted, the support for this limitation is found at page 3, paragraph [0041] of the pending published application (U.S. Patent Application Publication No. US 2003/0036369) noting that “[t]he radio frequency 56 is conducted *along the intrinsic pavement transmitter and antenna* 10 until it reaches another transmitter/receiver.” (Emphasis added). There is no description or disclosure in the application of the use of any other conducting medium between the two transmitters/receivers. Indeed, this is the primary disclosure and claimed element of the present invention.

The Office Action again notes that Yoshida discloses an “intrinsic pavement transmitter and antenna” such that “the intrinsic pavement transmitter and antenna (Fig. 2, 26; Fig. 4, 52) conducts radio frequency signals or radio communications link between the first transmitter/receiver (Figs. 2, 4: 30) and the second transmitter/receiver (Figs. 2, 4: 16, 42, 44) within the pavement transmitter and antenna (col. 3, lines 19-27).” Applicants specifically note however that as described in Yoshida, “the antennas 26 are *coupled in series*.” Col. 2, lines 42 through 44 (emphasis added). The “coupling” as described and shown in Yoshida (see Fig. 2) appears to be a hardwire connection between the antennas 26 and the devices 28 for splitting and combining the signals from the plurality of antennas 26. Col. 2, line 59 through col. 3, line 2.

In response to that argument, the Office Action noted that the pending claims previously did not “distinguish a wired coupling versus a wireless coupling, [and] therefore Yoshida still reads on the claim.” With the current amendments, however, the pending claims of the present invention now explicitly are limited to the *wireless* conducting of signals. Moreover, applicants continue to contend that as described by Yoshida, the RF signal in Yoshida *is not* transmitted through the pavement using the pavement as the conducting medium, but the RF signal is transmitted between the antennas 26 using the wired couplings shown in Fig. 2.

By way of further example and support for this argument, and as disclosed and described in a second embodiment in Yoshida, and shown in more detail about the “coupling” of the antennas 26, Yoshida states that a single “leaky conductive line 52 [is used] in place of the combined arrangement of the antennas 26 and the devices 28 (Fig. 2).” Col. 3, lines 53 through 56. Yoshida explains that the “leaky conductive line 52 has one end coupled to a terminator 60 and the other end coupled to the roadside control unit 30.” Col. 3, lines 56 through 58. Yoshida further discloses that the “leaky conductive line 52” is a leaky coaxial cable” and that the “leaky coaxial cable (denoted by 52”) comprises an inner conductive pipe (made of aluminum (for example)) 54 which is provided in the interior of an outer conductive tube 56.” Col. 3, lines 63 through 64, and Col. 4, lines 1 through 5 (emphasis added). As such, the “coupling” of the antennas 26, or the use of a conductive line 52 to “couple” the terminator 60 and control unit 30 is, in either embodiment, by a conductive type of hard wire element.

Accordingly, applicants still contend that there is no disclosure or suggestion in Yoshida showing that the RF signal between the antennas 26 or between the terminator 60 and control unit 30 is conducted solely through the roadway material without some type of conductive, wired element. Because Yoshida does not disclose or suggest the use of the roadway material as the sole conducting element or conducting medium, applicants contend that Yoshida does not anticipate or render obvious the claimed invention. Applicants respectfully request withdrawal of the noted rejection based upon Yoshida.

Similar to Yoshida, Der Ghazarian does not disclose a system in which communication occurs between a receiver and transmitter such that the RF signals are conducted entirely within the roadway pavement and without any other conducting medium other than the roadway pavement. Accordingly, applicants respectfully contend that Yoshida in view of Der Ghazarian do not render obvious the pending claims as amended, and accordingly requests withdrawal of the noted rejection based upon Yoshida further in view of Der Ghazarian.

The advantages of the subject matter of claims 1 and 6 are not attained or suggested by the Yoshida patent alone, or in combination with any of the other cited patents. This is because claims 1 and 6 contain features as described above that are not taught or suggested by the applied references. As explained by Judge Rich in *In re Civitello*, 144 USPQ 10, 12 (CCPA 1964), when a claimed feature is not disclosed by the reference, the reference cannot render the claim obvious:

Since Haslacher fails to disclose the feature of the claim relied on, we do not agree with the patent office that it would suggest modifying the Craig bag to contain the feature. The Patent Office finds the suggestion, only after making a modification which is not suggested, as we see it, by anything other than appellant's own disclosure. This is hindsight reconstruction. It does not establish obviousness. (Emphasis in original.)

Thus, applicants respectfully do not agree with the Office Action that the Yoshida patent supports a prima facie case of anticipation or obviousness.

With respect to the objection to the currently pending drawings, applicants note that the informal drawings have been submitted to be formalized. Upon receipt of those formal drawings, they will be submitted for consideration by the examining draftsman.

B. Dependent Claims

Because claims 2 through 5, and 7 through 15, as amended depend directly from patentable claim 1 and patentable claim 6, these dependent claims are also patentable. *See, e.g., In re McCarn*, 101 USPQ 411, 413 (CCPA 1954) ("sound law" requires allowance of dependent claims when their antecedent claims are allowed). Moreover, claims 2 through 5, and claims 7 through 15, as amended are each non-obvious in view of the applied references.

C. Conclusion

By this Amendment, pending claims 1 through 15 have been amended directly (or indirectly through an amendment to the two independent claims) to place the application in better condition for examination and allowance.

Applicants respectfully contend that the rejections under 35 U.S.C. § 102 and 35 U.S.C. § 103 should be withdrawn. Favorable action is respectfully requested.

Finally, the Examiner is invited to call applicants' undersigned representative if any further action will expedite the prosecution of the application or if the Examiner has any suggestions or questions concerning the application or the present Response. In fact, if the claims of the application are not believed to be in full condition for allowance, for any reason, applicants respectfully request the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims pursuant to MPEP § 707.07(j) or in making constructive suggestions pursuant to MPEP § 706.03 so that the application can be placed in allowable condition as soon as possible and without the need for further proceedings.

Respectfully submitted,



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Application No. 09/932,870
Response to Office Action of July 17, 2007

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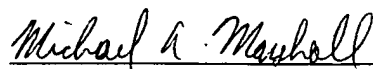
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